Supporting New Hampshire Youth, Moving Toward a Healthier Future

New Hampshire's Adolescent Health Strategic Plan

"The Youth of a Nation are the Trustees of Posterity."
BENJAMIN DISRAELI (1804-1881)
Sybil: Or, The Two Nations, 6.13, 1845

New Hampshire Department of Health and Human Services
Division of Public Health Services
Maternal and Child Health Section

University of New Hampshire
School of Health and Human Services
Center on Adolescence

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UNH Center on Adolescence

Supporting New Hampshire Youth, Moving Toward a Healthier Future

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MESSAGE FROM THE COMMISSIONER

I am pleased to present the Department of Health and Human Services' adolescent health strategic plan. Adolescence is an important time of development that has special health care needs that we, as a state, must consider. One in every five New Hampshire residents is between the ages of 10 and 24 years. However, this age group often receives little attention. This report details the areas of focus for improvement.

A significant part of that improvement involves outreach and education to the youth of the state. We want to help them develop healthy habits that will give them a lifetime of good health. We also want them to avoid risky behaviors that will lead them down the wrong road. While some may view adolescents as at-risk, I believe that every child is "at-promise" and can be given the tools for success in life.

I would like to thank the Division of Public Health Services, led by Director Mary Ann Cooney, who has put together a comprehensive look at our adolescents. Our Bureau of Prevention Services, Maternal and Child Health Section, in conjunction with the University of New Hampshire's Center on Adolescence, have put a significant amount of time and effort into this plan and deserve tremendous praise for their work.

John A. Stephen
Commissioner

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Perceptions of adolescence have long been of interest to adults in societies. Prominent figures throughout history have examined the ambiguities of youth - Confucius, Euripides, Winston Churchill, and Ralph Waldo Emerson, to name but a few. This attention to adolescence may stem, in part, from a human longing to create sustainable societies and institutions, and our knowledge that youth will be the ones to sustain them. From a public health perspective, a focus on healthy youth looks forward to ensuring a healthy population in future generations.

There are no specific statewide public health programs dedicated to the health of adolescents. Adolescent health care in the state currently exists as a patchwork of programs, models, and services funded through an array of public and private entities. Service duplication and gaps can then occur, and may result in uncoordinated systems of care. Sound business theory, as embodied in successful strategic planning efforts, has never been applied to New Hampshire public health practice in support of targeting resources and financial planning for adolescent health services.

Available data on our adolescent population indicate the need for a coordinated statewide adolescent health effort; suicide and unintentional injury, substance and tobacco use, and reproductive health issues are all significant health problems for our state's youth. Increasing socioeconomic, geographic, and ethnic diversities in New Hampshire's population are resulting in divergent health care needs throughout the state. This publication defines the current needs of New Hampshire's youth and develops a set of recommendations and objectives to comprehensively address those needs.

This strategic plan provides the foundation for a synchronized and integrated framework to improve adolescent health in New Hampshire and efficiently and effectively allocate resources. By encouraging cooperation and coordination among the many institutions, agencies, programs, communities, and individuals committed to adolescents, we hope to cultivate an environment in which New Hampshire's youth can develop healthy lifestyles, be well-engaged, and reach their full potential.

Preparing the youth of today to be healthy and productive citizens of the future requires the efforts of all segments of our society; government, business, healthcare, education, parents, and teens themselves must all play a role. New Hampshire takes pride in being a national leader with regard to quality of life for its citizens. To provide for the continuance of these values, we must work together to provide for the health and well-being of our youth.

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Introduction

This Adolescent Health Strategic Plan was a collaborative effort, conceptualized and initiated by the Adolescent Health Program, Maternal and Child Health Section (MCH), Division of Public Health Services (DPHS), New Hampshire Department of Health and Human Services (NH DHHS), and carried forward through the auspices of the University of New Hampshire (UNH) Center on Adolescence.

Many people and organizations have dedicated time and energy and provided insight into this project. We would like to extend our great appreciation to Charlotte Cross and the staff of the Teen Assessment Project at the University of New Hampshire Cooperative Extension, the Leadership Education in Adolescent Health Program at Boston Children's Hospital, the State Adolescent Health Coordinators' Network, the Community Health Institute, the NH DHHS Health Statistics and Data Management Section, members of the State Youth Collaborative, UNH Center on Adolescence Associates, the Konopka Institute for Best Practices in Adolescent Health and the many youth, parents and professionals who participated in interviews, focus groups and surveys.

The Maternal and Child Health Section

The Maternal and Child Health Section administers a broad array of programs providing for direct health care and population-based services to New Hampshire residents. Our staff works with a wide variety of partners to improve the health of all children and families in our state. The mission of the MCH is to improve the availability of and access to high quality preventive and primary health care for all children and their families, regardless of income. It is our goal that every child in New Hampshire has the opportunity to grow up healthy.

The MCH Adolescent Health Program strives to delineate the need for and scope of adolescent services; promote the use of evidence-based practices; design programs through both population-based and direct care models; assist local service providers in developing teen-friendly, effective services; offer expertise on teen issues; and inform communities and organizations about models of care that work for both adolescents and their families.

The UNH Center on Adolescence

The UNH Center on Adolescence is a university/state collaboration launched in October 2002, located in the School of Health and Human Services at the University of New Hampshire and associated with the New Hampshire Institute for Health Policy and Practice. The mission of the Center is to foster alliances that benefit youth and to provide research capacity, education, and state-of-the-art information that support the health and well being of adolescents in New Hampshire.

The Planning Process

A comprehensive planning process was carried out to arrive at this understanding of adolescent health status in New Hampshire. The objectives of this assessment were to perform a coordinated investigation of morbidities and mortalities, examine existing systems strengths and weaknesses, and develop recommendations for the improvement of adolescent health in New Hampshire.

The first component focused on data and consisted of an *indicator review* and an *information technology review*. Multiple sets of standards and measures were examined and compared with available New Hampshire data, providing objective evidence of adolescent health status in New Hampshire in relation to national and state health indicators, and identifying areas where other important adolescent health indicators are not currently measured. Standards & Measures sets included: Healthy People 2010 objectives, including the 21 Critical Health Objectives for Adolescents and Young Adults targeted by the National Initiative to Improve Adolescent Health (NIIAH) by the Year 2010 (see Appendix B, page 45); Healthy New Hampshire (HNH) 2010 objectives; Title V Maternal and Child Health performance measures and health status indicators; New Hampshire Child Health Indicators; and Guidelines for Adolescent Preventive Services (GAPS) indicators. These data sources provide a comprehensive, powerful picture from which to evaluate the health status of New Hampshire's adolescents.

The second component focused on knowledge – the knowledge of those invested in adolescence in New Hampshire. Multiple methods were used to gauge cross-community knowledge needs related to adolescent health care. Meetings of state employees involved or interested in adolescent health care were held, providing a forum to identify knowledge deficits and direct collaborative efforts. Both internet-based and face-to-face focus groups were conducted with health care professionals of all types, adolescents and their parents, and community coalitions. Surveys and key informant interviews were conducted. Community coalitions addressing adolescent health at the local level provided input on their activities and identified their training needs.

These groups provided a wealth of significant information to guide the planning process. Adolescent health care professionals spoke in an almost unanimous voice, of access constraints they face in caring for adolescents. Teens and their parents provided information on topics they feel are important for adolescent caregivers to recognize. Privacy, safety, and many mental health issues, from depression to eating disorders, were echoing themes. Community coalitions identified some common themes, such as the need for improved parent/teen communication skills, and concerns about substance and tobacco abuse.

The third component of this process addressed strategic planning. A small planning group led by MCH personnel grew into a statewide Adolescent Health Consortium, including representatives from Dartmouth Medical School, the University of New Hampshire, the Institute for Health Policy and Practice, and New Hampshire state agencies, including the Departments of Health and Human Services and Education. Information and input from these myriad sources were examined and guiding principles, recommendations and objectives were developed.

In October, 2003, an Adolescent Summit was held to present the recommendations and objectives to youth, parents, representatives from youth-serving organizations, and other professionals who work closely with youth. Participants reviewed recommendations and developed specific strategies and action steps to address them in their own work.

The majority of morbidity and mortality among adolescents is not a result of disease, but a result of social choice and behavior. Many adolescents engage in risk behaviors that are harmful or dangerous to themselves and others, with consequences to their health and well-being that may be short or long term. Key topic areas important to healthy adolescent development are presented in this report, along with pertinent data, to provide a foundation for the guidelines, recommendations and objectives that follow.

This report allows readers to compare New Hampshire with the nation when appropriate and should help direct resources to areas of demonstrated need. Many HNH 2010 goals are not youth-specific, but are included here to provide the reader with a broader context. HNH 2010 objectives related to the NIIAH's 21 Critical Health Objectives for Adolescents and Young Adults are noted with an asterisk; youth-specific HNH 2010 objectives are in bold-faced type for easy reference. Measures of progress towards achieving the goals established by the state-level HNH 2010 program are also included where relevant and available.

Development during Adolescence

Adolescence is a critical period for establishing habits with lifelong implications, and an important time for caring adults and communities to intervene and support in helping youth establish health-promoting behaviors (Call et al., 2002). The biological, cognitive, and social development that occurs during adolescence provides a foundation for adult experiences, skills, and responsibilities. There is no consensus on the exact age range that constitutes adolescence, but there is general agreement that dividing adolescence into stages is useful because of the dynamic growth and change that takes place during this time. Early adolescence is generally defined as beginning at 10-11 years of age, middle adolescence at 14-15, and later adolescence at 18-19 (Steinberg, 2002). The Centers for Disease Control and Prevention (CDC) and other federal agencies classify 20-24 year olds as adolescents because their health needs are similar and their service needs may be even greater than younger youth (Office of Disease Prevention and Health Promotion, US Department of Health and Human Services). This publication joins the National Initiative to Improve Adolescent Health by the Year 2010 in taking the more inclusive approach, and includes youth from 10-24 years of age in these considerations.

Development during adolescence is influenced by interactions among genetic, hormonal, and environmental factors. The dramatic changes that occur on this road to adulthood present both new risks and new opportunities for adolescents. During these years, youth work to understand and adapt to their changing bodies; establish a sense of themselves as individuals; become capable of more complex and critical thinking; function more independently from their parents; expand their knowledge about the world; and participate in more challenging, and sometimes risky, activities. For some youth, the dynamics of adolescence can be complicated by special health care needs, poverty, lack of a stable family life, learning difficulties, or lack of access to quality health care.

Understanding the broad range of information about normative development is needed in planning effectively to support adolescent well-being. Research on adolescents continually provides new data with implications for public health efforts. For example:

- *Brain development occurring during adolescence may contribute to adolescents' risk taking and experimentation, as well as vulnerability to depression, substance abuse and addiction, and other mental health problems* (Chambers, Taylor, & Potenza, 2003; Steinberg, 2002);
- *Adolescence is a critical period for the development of strong bones in women—an accomplishment that is dependent on a healthy diet, adequate calcium intake, and physical activity* (Rogol, Roemmich, & Clark, 2002);
- *The leading cause of disability among adolescents is mental health problems; there is a sharp increase in depression from childhood to adolescence with females being affected more than males* (Ozer, Macdonald, & Irwin, 2002);
- *The average age of first menstruation in the United States is about 12.5 years and the first ejaculation for males typically occurs around age 13 with initial appearance of*

sperm by age 14; *therefore pregnancy becomes a possibility during early adolescence* (Crooks & Baur, 2002);

- *Adolescents are biologically, psychologically and behaviorally at greatest risk for STDs* (Kassler & Cates, 1992);
- *Adolescent women are more vulnerable than adults to genital infections because in early puberty the reproductive tract is not protected from pathogens by cervical mucous* (Kassler & Cates, 1992);
- *Normal developmental changes during adolescence can influence sleep/wake schedules and put youth at increased risk for sleep deprivation that may result in school problems, sleepiness during driving, mood problems, and impaired ability to function (*Dahl & Lewin, 2002);
- *Limited employment—not more than 20 hours/week—facilitates adolescent development and academic achievement* (Shanahan, Mortimer, & Kruger, 2002).

In considering new research about adolescents, it is important to bear in mind that development is not something that happens *to* adolescents. Rather, youth are active agents in making choices, developing relationships, and interacting with their environment. One of the most dramatic changes to occur during adolescence - the development of more reflective thinking and formal reasoning abilities - prepares youth to partner with adults in creating and implementing strategies to ensure their well-being. Active encouragement of critical thinking and contemplation of alternative courses of action in response to real life issues can help adolescents develop the skills they need to participate in planning for their lifelong health.

Increasing Resiliency

A generally accepted approach to improving adolescent well-being is to reduce risk factors while increasing protective factors (see Appendix C, page 49). Protective factors are safeguards at the individual, family, or community level that promote competence and adaptation, thereby helping adolescents deal with stressful life events and resist health-compromising activities (Boganschneider, 1996). Examples of protective factors include having positive relationships with caring adults, being successful in school, and having good friends. Risk factors are individual characteristics or social environments associated with a greater possibility of engaging in unhealthy behavior. Risk factors include living in poverty, lack of access to routine health care, and lack of parental involvement. Recent research indicates that the best results for youth are achieved when efforts are made both to reduce exposure to risk factors and to increase protective factors across the different environments in which youth function (Catalano, Hawkins, Berglund, Pollard, & Arthur, 2002).

The resiliency that can result from possessing more protective factors and experiencing fewer risk factors can help adolescents deal with life's challenges. Many factors that affect adolescent development are social and environmental (Call et al., 2002). Therefore, it is important to consider the environments where youth spend most of their time when developing plans to better

promote adolescent health. By creating more supportive, caring environments that encourage positive development and increase resiliency in youth, our perspective is broadened so that communities and families share the responsibility for helping adolescents successfully transition to healthy adulthood.

The Search Institute (Scales & Leffert, 1999) has developed a framework of developmental assets that youth need to succeed. A result of the Search Institute's research since 1989, the forty developmental assets are grouped into eight domains and considered either 'external' or 'internal'. Research has shown that youth who have more of these assets are less likely to engage in risky behaviors, such as drug and alcohol use, while youth who have more of these assets are more likely to engage in positive behaviors, such as succeeding in school or helping others. For a list of the forty assets developed by the Search Institute, please see Appendix D.

Positive Youth Development: Children at Promise

In the last decade, theoretical and programmatic shifts from a problem oriented focus toward a positive youth development approach have recognized and valued adolescents' strengths and potential. These positive youth development perspectives purposefully seek to meet the developmental needs of youth and build skills and competencies (Pitman, Irby, Tolman, Yohalem, & Ferber, 2001; McLaughlin, Irby, & Langman, 1994). Development is seen as an ongoing process, influenced by the environment, mediated through relationships, and triggered through opportunities for involvement and participation (Pitman, Irby, Tolman, Yohalem, & Ferber, 2001). Rather than viewing youth as problems to be dealt with, youth development approaches consider young people as assets and resources and work to complement their strengths and capacities.

This more constructive approach to supporting healthy adolescent development has implications for those who develop programs, plan interventions, and make policies affecting adolescents. The goal becomes not just risk reduction, but also the preparation of youth for engagement in their families, schools and communities, in the process promoting their well-being and future. Providing opportunities for decision-making and leadership are the foundation of many positive youth development programs, because skills developed through these activities have long-lasting benefits and facilitate healthy transitions into adulthood (Pitman, Irby, Tolman, Yohalem, & Ferber, 2001; Benson & Saito, 2000). Demonstrated benefits of this type of approach are that youth: experience an increase in self-esteem, popularity, and personal control; exhibit decreased involvement in risky behaviors and juvenile delinquency; experience fewer psychosocial problems; and experience an increased capacity for academic achievement (Benson & Saito, 2000).

This Adolescent Health Strategic Plan is based on a positive youth development perspective that acknowledges the increased vulnerabilities of adolescence and seeks to extend and enhance the competencies and capabilities of adolescents. Supporters of this perspective advocate for including youth as partners in improving adolescent health, but believe that the ultimate responsibility for ensuring adolescent well-being rests with families, policy makers, professionals, and communities.

Adolescent Health Snapshots: Issues & Data

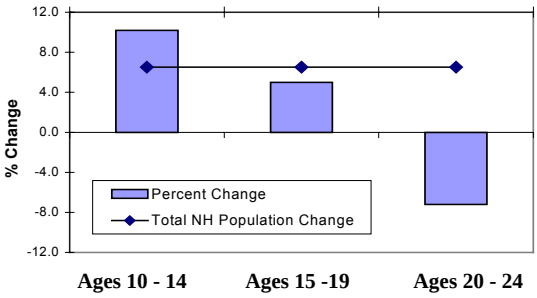
Demographics

Adolescents comprise 20% of New Hampshire's total population; nearly 263,000 New Hampshire residents are between the ages of 10 and 24. Thirty-seven percent of these youth are ages 10-14, 35% are ages 15-19, and 28% are young adults ages 20-24. (U.S. Census Bureau, 2001)

The population of the United States and that of New Hampshire and its youth is changing, becoming increasingly ethnically, racially and culturally diverse as we enter the 21st century. In 2001, New Hampshire had the highest population growth rate in New England and was 8th in the country (New Hampshire Employment Security, 2003). Census figures indicate the number of foreign-born residents rose 31.5% and the number of non-citizen residents grew 55% from 1990 to 2000, with the greatest share emigrating from Latin America and Asian countries. The number of Spanish-only speaking residents in New Hampshire grew nearly 64% during the same time period - a growth of about 10 percentage points above the national average.

While New Hampshire's overall population increased 6.5% between 1996 & 2000, there was great variability in the adolescent population, with an increase of 10.2% for those ages 10-14, a 5% increase for those ages 15-19 and a *decrease* of 7.2% for those ages 20-24.

Figure 1: Adolescent Population Changes, by Age Group, NH, 1996-2000

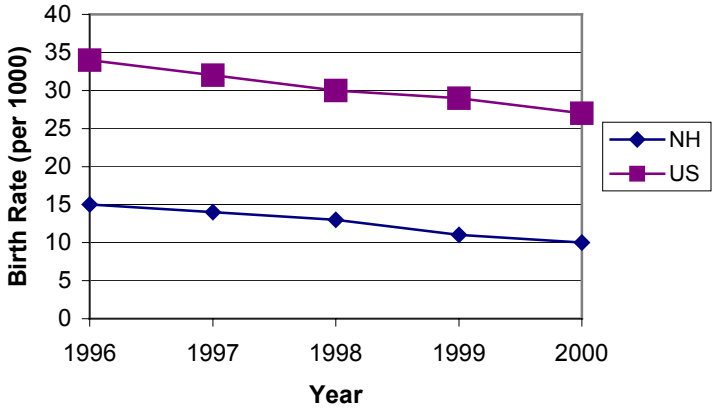


Data source: 2000 US Census

General Indicators

New Hampshire earned one of the highest rankings by the Annie E. Casey Foundation for indicators of overall child well-being for 1996-2000. Compared with the national average, fewer New Hampshire youth drop out of school or live in extreme poverty (Annie E. Casey Foundation, 2003). The rate of births to teen mothers has declined steadily since 1996 (Figure 2), with New Hampshire currently experiencing the lowest teen birth rate in the nation (Ventura, Mathews, & Hamilton, 2002).

Figure 2: Trends in Teen Birth Rate, Ages 15 to 17 years, NH vs. US, by Year



Data source: Annie E. Casey Foundation, Kids Count Databook 2003

Mortality rates for New Hampshire adolescents are also significantly lower than national rates. There are, however, noteworthy differences among age groups: mortality rates for youth ages 15-19 are more than three times higher and mortality rates for youth ages 20 – 24 are more than four times higher than for those ages 10 – 14 [US Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS), Compressed Mortality File].

Table 1: Death Rates for NH Adolescents, 1999-2001

Age Group	NH Rate	U.S. Rate
10 - 14 years	16.1	19.9
15 – 19 years	53.0	67.5
20 – 24 years	70.6	93.1

Data source: US DHHS, CDC, NCHS, Compressed Mortality File.
Rates are per 100,000 population

Vulnerable Populations

While New Hampshire generally ranks favorably on many adolescent health indicators, there is room for improvement. For example, in the National Survey of Children with Special Health Care Needs (CSHCN), 23% of New Hampshire households include at least one child (0-18) with special health care needs and an estimated 15% of New Hampshire children are considered to have special needs. This translates to 47,814 children and youth, and ranks New Hampshire as the 9th highest nationally for the prevalence of CSHCN (Van Dyck et al., 2002).

Homelessness affects New Hampshire youth. As of September 2001, there were 745 New Hampshire youth ages 10-17 in placement outside of their homes, with 66% living in foster homes, 31% in group homes, 3% in residential institutions, and 1% in supervised independent living (NH DHHS, Division of Family Support Services, 2003). However, youth ages 18 to 21 are not eligible for services in the foster care system and are not covered by child protection statutes, making them especially vulnerable to homelessness.

At any given time in New Hampshire, 2,500-3,000 adolescents under age 17 are involved with community juvenile justice services (Division of Family Support Services [DFSS], NH DHHS, personal communication, 8/4/03). At New Hampshire's Youth Detention Services Unit, where detained youth are held before arraignment and if they are not released to home before trial and sentencing, the average yearly census is 450 adolescents (DFSS, NH DHHS, personal communication, 1/28/03). The average yearly census at the Youth Detention Center, where sentenced juveniles are held, is approximately 100, with an average stay of about nine months. Although there are no youth under 17 years of age in the New Hampshire State Prison, 194 inmates were ages 17-21 years, and 367 inmates were ages 22 through 25 in November 2003, accounting for 23% of the total prison population (New Hampshire Department of Corrections, 2003).

Socioeconomic Status (SES) & Health

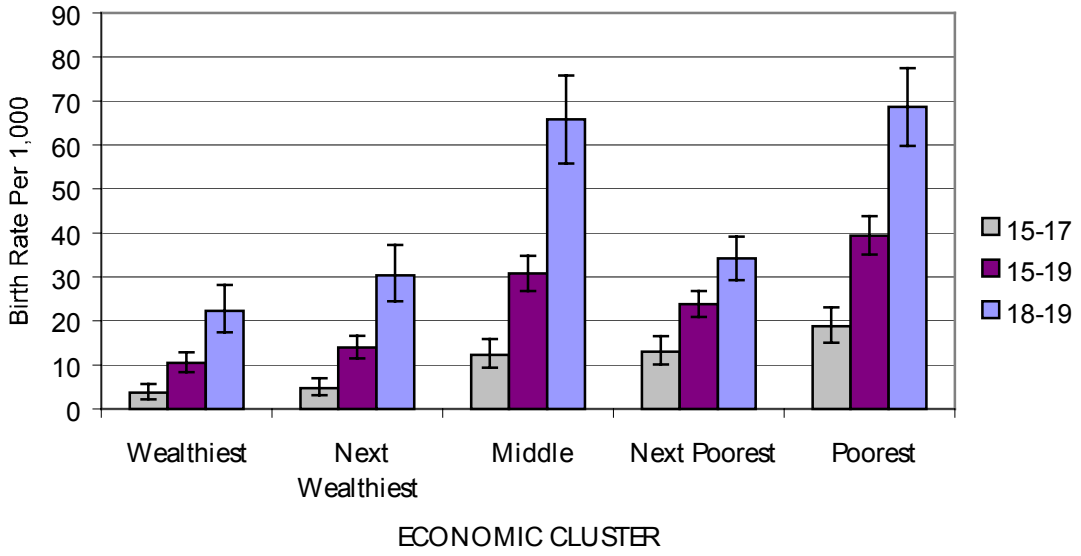
Socioeconomic status (SES) is a generic term for a combination of factors shown to be a powerful predictor of health status. SES can be measured in many ways, such as a family's income, access to health care services, quality of education, access to safe recreational spaces, ability to afford safe housing, and access to healthy food. SES can also be measured by an individual's status relative to others in society (i.e. social class). In essence, an individual's health is "affected not only by their own level of income, but by the scale of inequality as a whole" (Kawachi, Kennedy & Wilkinson, 1999).

Socioeconomic status is strongly associated with the health of adolescents (National Center for Health Statistics, 2000). Low family income decreases the ability to afford safe housing, healthy food, and appropriate health care. In New Hampshire, more than one out of every 14 children under age 18 (7.3%) are living in poverty (US Census Bureau, 2000).

Using a methodology similar to that developed for the Children's Alliance of New Hampshire's Kids Count 2000 databook, SES was investigated for its impact on various adolescent health outcomes in New Hampshire. New Hampshire towns were segregated into one of five economic clusters, equal in population size, based on 2000 Census data. The methodology used for this analysis is further described in Appendix A, page 40.

Although teen births (see Figure 3) was the only statistically significant indicator found in this analysis, there is a pattern suggesting that residence in poorer New Hampshire towns places youth at increased risk for poor outcomes. Adolescent suicide, unintentional injury, and hospitalizations for asthma are areas of most concern.

Figure 3: Teen Birth Rates by Age and Economic Cluster, NH, 1996-2000



Data source: 2000 U.S. Census

Access to & Availability of Health Care Services

The New Hampshire Prevention Guidelines (Foundation for Healthy Communities, 2004) recommend that all adolescents ages 11 through 18 have a routine physical every year and that those over 18 have a routine physical every three years. Regular screening visits enable health care providers to assist youth in navigating the challenges associated with growth and development during the adolescent years.

Healthy NH 2010 Objectives	NH Target 2010
Increase the percentage of persons age 65 and under who have a usual source of health care	96%[1]
Increase the percentage of persons age 65 and under who have health insurance	100%[1]
Increase the percentage of New Hampshire residents served by a fluoridated public water supply	65%[1]
Increase the percentage of adolescents who receive all recommended vaccines	**98% Including Hep B**

*[1] Target not specific to adolescents *Related NIIAH Critical Health Objective*

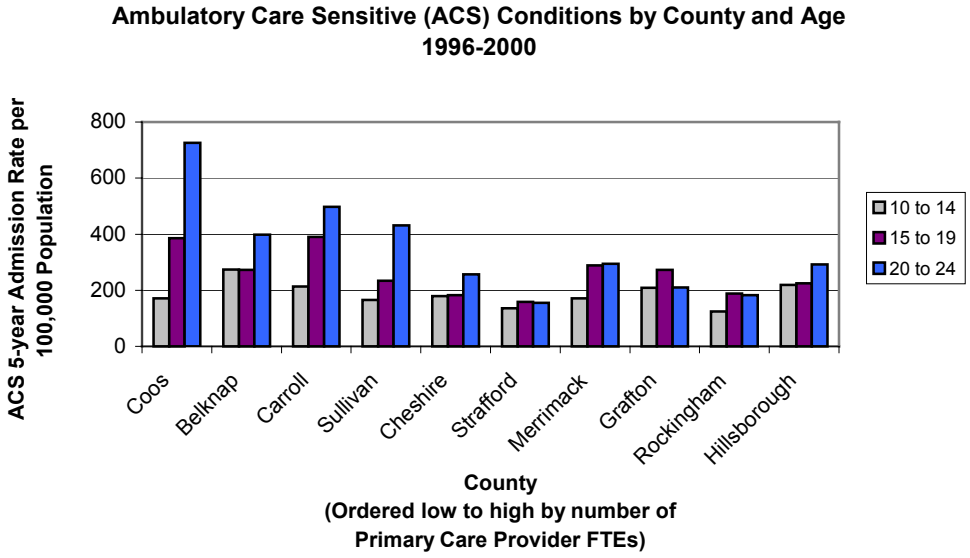
Preventive health care services can impact adolescent behavior and reduce the costs associated with preventable adolescent morbidity. Park, et al. discusses the importance of clinical preventive services for adolescents and examines potential cost savings, estimating that these services, provided to all adolescents, could save the nation up to $2.7 billion yearly in averted morbidity and mortality (Park, et al., 2001).

A majority of New Hampshire's youth aged 12-19 have access to and receive well-child care: Ninety-five percent of these youth are covered by some form of medical insurance (Office of Planning and Research, NH DHHS, 2001) and 60% of youth enrolled in New Hampshire Healthy Kids attend well-child visits (Shenkman, 2002). For those ages 18 to 24, however, 14.4% reported being uninsured in the 2002 New Hampshire Behavior Risk Factor Surveillance System survey [NH BRFSS] and 15% percent (NH BRFSS, 2000) reported needing to see a doctor in the past twelve months but not being able to afford to (question not asked in 2002).

Insurance or health care access, however, does not guarantee the use or provision of preventive services and little is known about the quality of services rendered. One measure that indicates health care utilization by adolescents is the percent enrolled in Medicaid who receive health maintenance services, called Early Periodic Screening Diagnosis and Treatment (EPSDT) services, during a given year. In 2002 in New Hampshire, the proportion of those eligible to receive EPSDT who actually received such services was relatively low. Forty-two percent of those ages 10-14, 36% of those ages 15-18, and 31% of those ages 19-20 received a screening service (Office of Health Planning and Medicaid, NH DHHS, 2003). Further investigation is needed to determine factors impacting this data.

An examination of Ambulatory Care Sensitive Conditions (ACSC) in adolescents ages 10 to 24 for the years 1996-2000 also revealed some areas of concern about access to primary care services. Ambulatory Care Sensitive Conditions are health problems, such as asthma, diabetes and epilepsy, where receiving appropriate primary care services can prevent inpatient hospitalizations (Billings et al., 1993). High ACSC admission rates may indicate poor access to or impaired quality of health care services. It can be seen in Figure 4 that the rate of ACSC admissions tends to be higher in New Hampshire counties with the fewest Full Time Equivalent (FTE) primary healthcare providers. Indeed, two counties (Belknap and Coos) are federally designated health provider shortage areas, and portions of many other counties have also been identified as shortage areas. The 20-24 year age group, particularly in counties with the greatest shortage of primary healthcare providers, experiences higher rates of preventable admissions. As individuals in this age group transition from their parents' or guardians' health insurance, they may have difficulty accessing primary care services due to the lack of health benefits often associated with introductory level jobs. While further analysis is necessary to account for the ratio of primary care providers to county population, and for the geographic distribution of primary care providers within counties, these data do suggest a measurable consequence (higher ACSC hospital admissions) of the primary healthcare provider shortages in several counties.

Figure 4: Ambulatory Care Sensitive Conditions, by County, 1996-2000[1]



Data source: Data from the Health Statistics and Data Management Section (HSDM), BDCLS, NH DHHS; Analysis by BMCH; [1]Readers should be cautioned not to compare different age groups within or across counties, but rather to compare the same age group across counties.

Health care services designed specifically for adolescents, and the data systems to measure them, are scarce in New Hampshire. Primary care teen health clinics, school-based health centers, and adolescent specialists are few, especially in comparison to our New England neighbors. Many regions of the state, especially the North Country and isolated parts of certain populated areas, are designated as mental health, dental health and primary care health professional shortage areas (Rural Health and Primary Care Section, NH DHHS, 2003).

Oral Health

Dental caries (tooth decay) are the single most common childhood disease. Untreated dental caries and periodontal disease (gum disease) can lead to tooth loss and edentulism (the loss of all teeth), affecting normal life functioning and an individual's self-image.

The American Academy of Periodontology (2003) reports an increased risk of periodontal disease in early adolescents, at least partly due to fluctuations in hormonal levels. A lack of motivation to practice oral hygiene during adolescence may also increase the risk of periodontal disease (American Academy of Periodontology, 2004). Regular dental care can prevent both periodontal disease and tooth loss. While no data exists on the oral health of New Hampshire's adolescents, access to dental services can be surmised to affect oral health.

Access to dental care is a problem for many in New Hampshire, specifically the poor, under and uninsured in rural communities and large population areas. The five New Hampshire areas designated as Dental Health Professional Shortage areas contain 249,150 people, or 20% of the state's population. Nationally, only 18% of adolescent Medicaid beneficiaries receive dental

screenings (Olson, Perkins, and Pate, 1998). During 2002, only 49% of New Hampshire children and adolescents ages one to 20 enrolled in Medicaid were seen by a dentist (Office of Medicaid Policy and Business, NH DHHS, 2004).

Mental Health Services

The National Institute for Mental Health [NIMH] (2004) reports that, "in the US today, one in ten children suffers from a mental disorder severe enough to cause some level of impairment". Less than one in five of these children obtain needed treatment (NIMH, 2004). The need for both prevention and treatment services is clear.

Access to mental health services is an identified need in New Hampshire. While Medicaid provides coverage for children's mental health services, a diagnosis of severe emotional disturbance is required to receive services. Mental health safety net systems are overtaxed, with long waiting lists. Limited community-wide coordination exists for the early identification of mental disorders. For example, in 1995 public mental health centers in New Hampshire served 6,409 children and youth. Although the number served increased by approximately 75%, to 11,165 served in 2001 (New Hampshire Child Fatality Review Committee, 2002), waiting lists are still prohibitively long. In both private and public sectors the picture is equally bleak, with few New Hampshire psychiatric providers statewide trained in caring for children.

Physical Activity & Diet

Healthy NH 2010 Objectives	NH Target 2010
***Reduce the prevalence of overweight and obesity, 9th -12th graders**	**5%**
***Increase the percentage of high school students who engage in physical activity for 30 minutes or more 5 or more times per week**	**50%**
Increase the percentage of high school students enrolled in physical education classes	**50%**
Increase the percentage of high school students who consume 5 or more portions of fruit and vegetables daily	**50%**
Increase the percentage of high school students who meet dietary recommendations for calcium	**75%**
**Related NIIAH Critical Health Objective*	

Body image and physical appearance are important issues for adolescents, as they develop a sense of self and security with that self. The rapid physical growth of adolescence requires a well-balanced diet to ensure adequate supplies of necessary nutrients. However, adolescent diets are often deficient in calcium and iron and contain excessive sodium and saturated fats. Hectic lifestyles, an increase in disposable income, and a lack of knowledge about healthy eating practices contribute to a high concentration of convenience and fast foods in many adolescents' diets. Poor dietary choices during this time have potentially enormous ramifications on adult health status, especially in resistance to chronic diseases, such as heart disease, hypertension, and diabetes. The two most predictive factors in the development of obesity are physical activity and diet.

According to the 2003 New Hampshire Youth Risk Behavior Survey (NH YRBS), more than a third of surveyed young people in grades 9–12 did not regularly engage in vigorous physical activity and 26% reported watching three or more hours of television on the average school day. Of the 18-24 year olds responding to the 2002 NH BRFSS survey, 83% engaged in some physical activity, while 17% reported no physical activity.

According to the 2001 NH YRBS[1] (question not asked in 2003), only 31% of the students surveyed ate vegetables other than green salad one or more times per day during the past seven days (24.3% males; 36.8% females). A New Hampshire School Nutrition Environment Survey (New Hampshire Department of Education, [NH DOE], 2001) found that, of reporting high schools, 62% had vending machines with soda, 32% of all reporting schools sold food that did not meet U.S. Dietary Guidelines, and 23% reported that there was not enough available time for children to eat and socialize.

- The risk of overweight and obesity increases as adolescents age:

Table 2: Prevalence of Overweight and Obesity by Age Group, NH, 2003

Age Group	% Overweight	% Obese
Grades 9-12*	10	Not available
Ages 18-24**	26.2%	10.9%

Data sources: *NH YRBS, 2003; **NH BRFSS, 2002

- Our youth are trying many different methods to lose weight.

Table 3: Prevalence of Weight Control Behaviors among NH High School Students, by Sex, 2003

Behavior	% of Youth (total)	% of Youth (Male)	% of Youth (Female)
Trying to lose weight	45	24	67
Exercised to lose weight	58	45	72
Took diet pills	8	5	11
Have vomited or taken laxatives to lose weight	3	1	5

Data source: NH YRBS

[1] Because of inadequate sample size in 2001, this YRBS data is not representative of all New Hampshire youth.

Eating disorders

The number of adolescents with eating disorders has increased steadily since the 1950's. Approximately 0.5% of adolescent females in the United States have anorexia nervosa, 1% to 5% have bulimia nervosa. While these disorders primarily affect young females, 5% to 10% of cases occur in males. Intervention at an early stage can prevent progression of the disorder. Adolescents should be screened for eating disorders as part of their regular health care. (American Academy of Pediatrics, 2003)

- Interestingly, while 10% of students surveyed in the 2003 NH YRBS were reportedly overweight, 24% of males and 67% of females reported trying to lose weight, suggesting that some New Hampshire youth are attempting to lose weight when they don't need to.
- Between 1996 and 2000, 76 New Hampshire youth were hospitalized for eating disorders: 22 were ages 10-14; 40 were ages 15-19; and 14 were ages 20-24 (HSDM, DPHS, NH DHHS, 2003).

Mental Health

Healthy NH 2010 Objectives	NH Target 2010
*Increase the number of persons who receive mental health screening and assessment in a primary health care setting	Developmental
Increase the number of persons who receive mental health screening upon entry into the criminal justice system	Developmental
**Related NIIAH Critical Health Objective*	

Mental health in adolescence is defined by the "achievement of expected developmental cognitive, social, and emotional milestones and by secure attachments, satisfying social relationships, and effective coping skills." (U.S. Public Health Service, 1999) Mental disorders are comparable to other major chronic diseases as a cause of illness, disability, cost to society and impaired quality of life. For adolescents, mental disorders can affect school achievement, sense of self, and relationships with peers and parents, and lead, ultimately, to thoughts of suicide and actual attempts to end life.

Risk factors for mental disorders can be genetic and environmental: psychosocial factors, such as exposure to violence, poverty, and relationships with caregivers, and biological factors, such as abnormalities of the central nervous system that influence behavior and arise from exposure to toxins in the environment (i.e. lead), are potential environmental influences in mental health. The interplay between genetic predisposition and the environment is complex. For adolescents, environmental factors may be more influential in the manifestation of these disorders than for adults. (U.S. Public Health Service, 1999)

The unpredictable progression of mental disorders during adolescence adds complexity in this population. Some adolescents improve and some worsen, often inexplicably, making both diagnosis and treatment difficult. Common mental health disorders in adolescence are attention-deficit disorder, oppositional-defiant disorder and disruptive disorder, which can cause youth to be hyperactive, disruptive in the classroom and generally defiant. Adolescents also commonly suffer from depression and anxiety, often occurring in tandem. (U.S. Public Health Service,

1999). Early diagnosis and treatment of depressive disorders are critical to healthy emotional, social, and behavioral development; lack of treatment may result in suicidal ideation, attempt or completion. Suicide, a critical issue for adolescents, is discussed in this report in the intentional injury section.

Little data exist on the scope or impact of mental health issues for New Hampshire adolescents. However, in the School Health Services Report (NH DOE, 2001), participating schools reported a wide array of psychiatric diagnoses among students.

Table 4: Prevalence of Psychiatric Diagnoses in Selected NH Schools, 2001

Diagnoses	%
Emotional Disorders	2.2%
Pervasive Developmental Disorders	3.3%
Other Psychiatric or Behavioral Disorders	2%
ADD or ADHD	3.5%
Mental Retardation	0.8%
Developmental/Learning Disorders	2.2%

Data source: NH DOE, School Health Services Report, 2001

Injury

Injuries are the leading cause of death and disability to teens, both nationally and in New Hampshire. Injuries are classified as unintentional, such as motor vehicle crashes, falls, and drowning, or intentional, such as assault, homicide, and suicide. Both unintentional and intentional injuries are potentially preventable through a combination of laws, education, and design. For example, graduated licensing and seat belt laws are effective in reducing motor vehicle crash injuries and deaths and limiting access to lethal methods, such as firearms, can prevent suicides. Motor vehicle crash-related injuries and suicide were responsible for 32% and 19%, respectively, of all New Hampshire adolescent deaths in the years 1999 and 2000 combined.

Healthy NH 2010 Objectives	NH Target 2010
Reduce motor vehicle (MV) occupant injury deaths and hospitalizations	1.0 death[1]; 26.0 inpatient discharges[1]; 577.0 ED visits[1]
Reduce physical assault injury deaths and hospitalizations	1.0 death[1]; 5.0 inpatient discharges[1]; 163.0 ED visits[1]
Reduce firearm deaths	4.9 deaths[1]
Reduce child and adolescent (ages 0-19) unintentional injury hospitalizations (excluding MV)	69.0 inpatient discharges; 348.0 ED visits
Reduce suicide deaths and attempts	4.0 deaths[1]/ 159.0 ER visits[1]

[1] Target not specific to adolescents; rate is per 100,000 population
**Related NIIAH Critical Health Objective; ED=hospital emergency department*

Injuries were the cause of approximately 73% of all adolescent deaths in New Hampshire for the years 1999 and 2000. Table 5 highlights the leading causes of injury deaths for New Hampshire adolescents in those years.

Table 5: Leading Causes of Death for Adolescents, NH, 1999-2000

Cause of Death	Number of Deaths Ages 10-24
MV/Traffic	67
Suicide	40
Other Unintentional	44
Homicide- firearms	4

Data source: HSDM, NH DHHS, 2003

Intentional Injury

While adolescent homicide rates in New Hampshire are low compared to other states, suicide and physical violence are areas of concern. As is the case nationally, suicide is the second leading cause of injury-related death among adolescents ages 15-24 in New Hampshire, and the third leading cause for those ages 10 to 14. Death rates are higher among males than females, due to their greater use of more lethal means. Hospital discharge rates for self-inflicted injuries are higher among females, who tend to use less lethal means.

Increasing national attention to the problem of suicide has resulted in its recognition as a serious public health problem and the development of an evidence-based national strategy. The strategy, developed by a broad group of partners, including public health and mental health officials, professional and private voluntary organizations, and others, identifies suicide risk and protective factors. It also outlines goals and objectives for action at the community and national levels (U.S. DHHS, Public Health Service, 2001).

Suicide and self-injurious behaviors are critical issues for adolescent health and well-being:

- During the three year period, 1999 to 2001, there were 66 suicides to New Hampshire adolescents 10 to 24 years of age, a rate of 8.77 deaths per 100,000, slightly higher than the U.S. rate of 7.46 deaths per 100,000 (USDHHS, CDC, WISQARS, 2003).

- Adolescents ages 15 to 24 experienced the highest rate of inpatient hospitalizations for self-inflicted injuries among all age groups at 105.4 hospitalizations per 100,000 population during 1997 to 2001. There were an average of 159 inpatient hospitalizations per year to adolescents during that period (Burns & Twitchell, 2003)

- The highest rate of emergency department visits for self-inflicted injuries, at 333.4 visits per 100,000 population, also occurred among those ages 15 to 24. There were over 500 emergency department visits per year during the three-year period of 1999 to 2001. Two thirds of these visits occurred among females (Burns & Twitchell, 2003).

Table 6: Prevalence of Suicide Risk Factors among NH High School Students, by Sex, 2003

Risk Behavior	% of Youth (total)	% of Youth (Male)	% of Youth (Female)
Felt sad and hopeless	28%	21.6%	34.2%
Seriously considered suicide	17.8%	12.9%	22.5%
Made a plan to commit suicide	13.3%	9.6%	16.9%
Prior suicide attempt in past 12 months	7.7%	3.9%	11.4%
Prior suicide attempt required medical treatment	2.5%	0.9%	4.0%

Data source: NH YRBS, 2003, students in grades 9-12

Physical violence is a problem for New Hampshire adolescents:

- Youth ages 15 to 24 experienced the highest rate of inpatient hospitalizations for assault among all age groups: 14.2 per 100,000 compared to 5.5 per 100,000 for all ages combined, during 1997 to 2001.
- The highest rate of emergency department visits for assault occurred among adolescents ages 15 to 24: 730.1 per 100,000 compared to 228.8 for all ages combined for the three-year period 1999 to 2001.
- Over 3,400 youth ages 15 to 24 required treatment at an emergency department for assault related injuries during the three-year period 1999 to 2001.

Of students in 9th through 12th grades responding to the 2003 NH YRBS survey:

- 31% reported that they had been in a physical fight in the past year (39% male, 21% female).
- 3% were injured in a fight and needed to be seen by a doctor or nurse at least once in the past year.
- 12% had been in a fight on school property in the past year.
- 3% of students surveyed did not go to school on one or more days in the past 30 days because they felt unsafe.
- 5% of teens (3% of boys and 8% of girls) reported having been sexually assaulted in the past 12 months.
- 7% reported having been hit, slapped or physically hurt by a boyfriend or girlfriend in the past 12 months.

Unintentional Injury

Leading causes of unintentional injury deaths in New Hampshire are motor vehicle crashes, drowning, falls, and poisonings. Death rates for males are approximately double those of females. In the three-year period, 1999-2001, 173 youth ages 10-24 died as the result of an unintentional injury; 71% of these were male (Burns & Twitchell, 2003). Many of these deaths could have been prevented.

Hospitalizations due to injuries far outnumber deaths. During the five year period of 1997 to 2001, there were over 2400 inpatient hospitalizations for injuries among New Hampshire youth aged 10 to 24; over 70% of these were to young males.

- Youth have one of the highest rates of motor vehicle injury deaths of any age group:

Table 7: Motor Vehicle Crash Death Rates by Age Group, NH, 1999-2001

Age Group	NH Death Rate	U.S. Death Rate
10-14 years	2.9*	4.8
15-19 years	18.8	28.0
20-24 years	20.7	28.5

Data source: USDHHS, CDC, NCHS, Compressed Mortality File.
Rates are per 100,000 population
*Rate is based on <20 events and is therefore statistically unreliable.

- A greater number of occupants and occupant fatalities occur in motor vehicle crashes where adolescents are driving than with other age groups. Young drivers are also more likely to be impaired by alcohol at the time of the crash:

Table 8: Characteristics of Motor Vehicle Crashes by Age of Driver, NH, 2001

Age Group	Avg. number occupants per crash	Avg. number fatalities per crash	Alcohol-impaired drivers per crash
Age 24 and under	3.5	1.9	1.8
Older than age 24	1.9	1.0	1.2

Data source: New Hampshire Department of Safety.

- Youth may engage in risk-taking behaviors that contribute to motor vehicle crashes:

Table 9: Prevalence of Motor Vehicle Crash-related Risk Behaviors among NH High School Students, by Sex, 2003

Risk Behavior	% of Youth (total)	% of Youth (Male)	% of Youth (Female)
Don't wear seat belt	13	16	9
Rode with drinking driver	25	25	24
Drove while drinking	10	12	8

Data source: NH YRBS, 2003, students in grades 9-12.

Alcohol, Drug, and Tobacco Use

New Hampshire youth are at risk for illnesses and injuries related to the use of alcohol, tobacco, and other substances. Cigarette smoking during childhood and adolescence produces significant health problems among young people, including cough and phlegm production, an increased number and severity of respiratory illnesses, decreased physical fitness, an unfavorable lipid profile, and potential retardation in the rate of lung growth and the level of maximum lung function. Among addictive behaviors, cigarette smoking is the one most likely to become established during adolescence. People who begin to smoke at an early age are more likely to develop severe levels of nicotine addiction than those who start at a later age. Tobacco use is associated with alcohol and illicit drug use and it is generally the first drug used by young people who enter a sequence of drug use that can include tobacco, alcohol, marijuana, and harder drugs. (US DHHS, 1994)

Healthy NH 2010 Objectives	NH Target 2010
Increase the percentage of youth who report never using alcohol	**27%**
***Reduce the percentage of youth who report having used alcohol in the past 30 days**	**43%**
Increase the percentage of youth who report never using tobacco	**43%**
***Reduce the percentage of youth who report having used tobacco in the past 30 days**	**24%**
Increase the percentage of youth who report never using marijuana	**60%**
***Reduce the percentage of youth who report having used marijuana in the past 30 days**	**20%**
Increase availability of and access to treatment for adolescent alcohol use, adult alcohol and drug use, and adult tobacco use	Developmental
Increase parental monitoring of youth alcohol and tobacco use	**80%**
*Reduce the number of alcohol related deaths on New Hampshire roads	24 deaths per year[1]

*[1] Target not specific to adolescents; rate is per 100,000 population; *Related NIIAH Critical Health Objective*

Tapping into Teen Concerns, Perceptions and Behaviors (Teen Assessment Project, 2001) findings suggest that New Hampshire students face several issues around alcohol, drug, and tobacco use: previous experience and frequency of use; lack of knowledge about the potential dangers of using substances; access to supply and opportunities to engage in alcohol, drug, and tobacco use; and the influence of their social environments.

With regard to previous experience and frequency of use, survey data indicate significant rates of experimentation:

The 2001 New Hampshire Youth Tobacco Survey (NH YTS) found that 57.9% of high school students and 18.5% of middle school students reported trying cigarettes and *31% of high school students were current users of some form of tobacco* (Alcohol, Tobacco & Other Drug Prevention Section, DPHS, NH DHHS, 2001). Of 18-24 year olds surveyed through the 2002 NH BRFSS, 33.5% (95% CI: 27.4-39.5) are current smokers.

- Many youth are using or have used drugs or alcohol:

Table 10: Prevalence of Drug/Alcohol Use/Abuse among NH High School Students, by Sex, 2003

Behavior	% of Youth (total)	% of Youth (Male)	% of Youth (Female)
Have used Alcohol	75	75	76
Have used Cocaine	10	10	10
Have used Marijuana	50	54	45
Have used Inhalants	13	13	13

Data source: NH YRBS 2003, students in grades 9-12

With regard to understanding the risks of alcohol, drug, and tobacco use:

- 33% of the students in the Teen Assessment Project multi-community report (2001) had had five or more drinks of alcohol in a row, that is, within a couple of hours, on one or more of the past 30 days, i.e. *binge drinking*.

- 23% of students felt that binge drinking once or twice each weekend poses little or no risk of physical or other harm to people.

This discrepancy between the proportions of high school teens engaging in binge drinking (33%) and those believing it entails little or no risk of harm (23%) suggests that some teens are engaging in behavior that they believe to be risky**.**

With regard to supply of substances:

Only 5% of high school students responded that it would be very hard for them to get beer, wine, or hard liquor if they wanted to do so. Among the same high school students, only 10% responded that it would be very hard for them to get some marijuana if they wanted to.

With regard to environmental influence:

Youth may feel pressure from their peers to engage in risky behavior or live in homes where substance abuse is commonplace. Seventeen percent (17%) of teens in the TAP multi-community report *worry at least a little about their parents' alcohol or drug use* (middle school, 16%; high school, 17%). Thirty-seven percent (37%) of teens surveyed worry about being pressured into drinking or doing other drugs (middle school, 44%; high school, 34%)(University of New Hampshire, 2001). A study of New Hampshire families assessed by the New Hampshire Division of Family Support Services showed that one in five had alcohol or drug problems. It has been estimated that 6,000 New Hampshire youth ages 12-17 are dependent on alcohol or illicit drugs skyrocketing to 18,000 in ages 18-25. (New Futures, 2002)

Reproductive Health

Sexual activity in adolescence can have profound economic and social ramifications. Premature sexual activity can have far-reaching consequences, such as teen pregnancy, childbirth, and sexually transmitted diseases. The health risks of pregnancy, for example, are highest for females younger than age 20 and age 35 or older. Young women are physiologically at increased risk for contracting sexually transmitted infections (STIs) (Kassler, 1992), and the consequences of these infections can lead to infertility, chronic infection, or, for some, death.

Healthy NH 2010 Objectives	NH Target 2010
***Increase the percentage of 9th through 12th graders who report never having engaged in sexual intercourse**	**64%**
***Increase the percentage of sexually active 9th through 12th graders who report having used a condom during their last sexual intercourse**	**61%**
***Reduce teen births (per 1000 females 15-19 years of age)**	**21.1 births**
***Reduce the incidence of Chlamydia infection among adolescents and young adults (per 100,000 population ages 15-24 years old)**	**88.5 infections**
*Reduce the number of new cases of HIV infection among adolescents and adults	Developmental
**Related NIIAH Critical Health Objective*	

The teen birth rate in New Hampshire has declined in recent years, mirroring the national trend, and is significantly lower than the national average. New Hampshire consistently ranks 1st or 2nd for lowest teen birth rate in the U.S. Still, approximately 1000 births per year in New Hampshire, or 8%, are to teen mothers ages 19 or under (Lagana, Chalsma, & Porter, 2003).

- Reported sexual activity increases with age:

Table 11: Sexual Activity Among NH High School Students, by Grade, 2003

Grade	Ever had Sex (%)
9th	24
10th	38
11th	48
12th	63

Data source: NH YRBS 2003

Of youth participating in the 2003 NH YRBS survey, 42% of all students reported that they had had sexual intercourse and only 56% of those who reported having sexual intercourse in the previous three months had used a condom during their last sexual intercourse.

Table 12: Sexual Activity and Condom Use, NH High School Students, 2003

	Male (%)	Female (%)
Ever had Sex	42	41
Use Condoms	64	50

Data source: NH YRBS 2003, students in grades 9-12

Unsafe sexual activity can lead to the spread of disease. Chlamydia is the most common STI under surveillance in New Hampshire and nearly 80% of cases are detected in individuals ages 15 to 24 (Communicable Disease Surveillance Section, NH DHHS, 2004). In 2003 in New Hampshire, the overall rate of infection per 100,000 persons was 130.4. Chlamydia rates are increasing among adolescents. Among 15 to 19 year olds, the 2003 rate was 658.7 per 100,000, a 30% increase over the 1999 rate for that age group (Communicable Disease Surveillance Section, NH DHHS, 2004).

The actual incidence of HIV infection in New Hampshire is unknown because of reporting method inconsistencies that may result in duplicate reports. However, AIDS reporting in New Hampshire is reliable. During the 5-year period of 1999 through 2003, 12 cases of HIV (non AIDS) and eight new cases of AIDS were reported in adolescents aged 10 to 24 (Communicable Disease Surveillance Section, NH DHHS, 2004).

Environmental Health

The greatest threat of disease facing New Hampshire's adolescents is no longer infectious: the burden has shifted to chronic conditions such as asthma, cancers, and neurodevelopmental disorders, forming what some call the "new pediatric morbidity" (Landrigan, et al., 2002). Adolescents have heightened susceptibility to environmental toxins, as maturation of many body systems including the skeletal, immune, respiratory, reproductive, and central nervous systems occur during this stage of development (Golub, 2000). Diseases such as childhood cancers and neurobehavioral disorders, such as ADHD, are on the rise and may have a significant environmental component (Landrigan, et al., 2002; Children's Environmental Health Network, 2003).

Healthy NH 2010 Objectives	NH Target 2010
Increase the percentage of newly constructed and renovated buildings that are professionally designed to meet established air quality standards	Developmental
Decrease the number of emissions that exceed the National Ambient Air Quality Standard	Ozone – 5 Others - 0

The most common disease with a strong known environmental component is asthma. Asthma is the most prevalent chronic condition in those under age 18 and a major cause of school absenteeism, hospital visits, and diminished quality of life. Common air pollutants, such as tobacco smoke, ground level ozone, and carbon monoxide, exacerbate asthma and other respiratory conditions. There is currently no statewide data on asthma prevalence in New Hampshire youth. However, the School Health Services Report (NH DOE, 2001) found that, of schools responding, 12% of middle school and 8% of high school students were asthmatic. Nearly 18% of 18 to 24 year olds surveyed in the 2002 NH BRFSS reported that a doctor, nurse, or other health professional had told them that they had asthma. Youth ages 15 to 24 years have the highest rates of emergency department visits for asthma, of any other age group, but one of the lowest rates of inpatient admissions (Wilson, 2003).

There are three distinct settings where adolescents are exposed to environmental toxins the school, the home, and the community. Schools are where most adolescents spend most of their time and where significant exposures can occur. Schools may be built with materials that release chemical irritants; expose youth to dust and pollen through re-circulated air; have high radon and asbestos levels; or use potentially dangerous compounds in art, science and vocational classes. In one California study, for example, 52% of responding schools used pesticides that are classified as a reproductive or developmental toxin (Clayton, Brindis, Hamor, Raiden-Wright, & Fong, 2000). Little information is available on the physical health of and chemical use by New Hampshire schools.

In the home environment, youth can be exposed to allergens such as dust, mold, cockroaches and dust mites and asbestos, pesticides or lead. Of potentially greatest concern is environmental tobacco smoke (ETS). ETS can exacerbate asthma and other respiratory conditions and can be an antecedent to lung cancer. In New Hampshire, 43% of high school students and 39.3% of middle school students live with someone who smokes (Knight, 2001).

At the community level, youth are exposed to environmental pollutants caused by factory and industrial waste and emissions, pollution from motor vehicles, and most ubiquitously, the sun. Community level pollution causes ground level ozone and carbon monoxide that can impact lung function, acid rain and industrial run-off that can contaminate water and food supplies. Eighty percent of a person's lifetime exposure to ultraviolet light occurs before the age of 18. Sunburns in adolescence increase the likelihood that an individual will develop malignant melanoma. (National Environmental Health Association, 1997)

School Achievement

Most youth spend a considerable amount of their lives in school; the school environment plays an important role in adolescent growth and development. Schools provide youth with the opportunity to develop academic, vocational, and social skills. Over 65,000 students were enrolled in high school in New Hampshire as of October 2003 (NH DOE, 2004, *High School Enrollments*). While the percentage of annual dropouts for the 2002-2003 academic year was only 3.8%, the estimated cumulative rate, predicting the percent of current students who will drop out before reaching graduation, is 14.4% (NH DOE, 2004, *Event Dropout Rates*).

The state of New Hampshire reported a 94.7% attendance rate for middle and junior high school students and a 92.7% attendance rate among high school students during the 2002-2003 academic year (NH DOE, 2004, *Attendance Rate*). In the TAP multi-year report (UNH, 2001), 53% of students surveyed reported that they enjoy going to school and 48% reporting that they felt that rules were enforced fairly at their school. Middle school students enjoyed school more than their older peers, and were more likely to feel that the rules were fairly enforced. Sixty-two percent (62%) of youth surveyed felt that they get a good, high quality education at their school, with middle school students again more likely to agree that they get a good education than high school students.

Many New Hampshire students are planning for their futures. Of the 5,643 New Hampshire seniors surveyed in 2003 (NH DOE, 2003, *High School Senior Survey*), 48% of males and 60% of females reported plans to attend a four-year college.

Almost 11% of males report plans to join the military, while only 3% of females have the same plans. Approximately 22% (both males and females) reported intentions to attend less than a four-year college, while 10% of students intended to work. Of all students surveyed, 52% of public school students and 70% of private school seniors do not plan to live in New Hampshire after completing their education.

Discussions on Adolescent Health

To enrich the picture of adolescent health provided by data, a series of focus groups, interviews, and surveys were conducted with over 130 stakeholders, including parents, health professionals, state agencies, youth-serving organizations, youth, and others whose work intersects the lives of youth.

Seven focus groups were held with 56 adolescents including racial and ethnic minorities, youth with special health care needs, youth who had dropped out of school, and youth attending college. Themes explored with youth included defining health, priority health concerns, sources of information, health-seeking behavior, and recommendations for improving health. There was a striking similarity in responses to these questions and what needs to be done to address adolescent health:

- All participants agreed that "being healthy" is more than the absence of disease and that true health is a function of physical and mental well-being. Eating right and being physically fit are important to good health.
- High priority health concerns included sex, STDs and birth control, diet, smoking, drugs and alcohol, and exercise and staying in shape.
- Confidentiality in interactions with health professionals and school personnel was seen as a large barrier to seeking advice and information on health related behavior, making information from peers, parents, and secondary sources, such as the internet, all the more important.
- Youth valued the opinions of their peers and their parents.
- Youth wanted "straight talk" about the issues that concern them and wanted to hear from people with real life experiences to share.
- Youth wanted help with transitioning to new stations in life ranging from the move from middle to high school to seeking out appropriate adult health care services.

Youth with special health care needs spoke of more specific concerns related to their chronic medical conditions:

- Participants had a high level of sophistication about their bodies and their medical condition, an unusual level of familiarity with the health care system, and were very focused on tangible medical issues.
- Most high priority health concerns were related to their chronic conditions, but social and emotional well-being with family and peer groups was also emphasized.
- Participants were generally proactive and self-sufficient in seeking health related information, identifying parents, friends, doctors, the Internet, and peer or support groups as the most common sources of information.
- Participants could recognize the "expert" for any particular issue and turned to that source. For example, school-based resources were not generally a first-line source of health information for these youth, who accessed medical specialists for "hard" information and relied on friends more for support.

- Confidentiality was a concern. Both school and health care personnel had a good deal of familiarity with the participants because of their chronic conditions and were used to discussing health issues with parents/guardians.
- Participants generally had very good relationships with primary and specialty care providers, likely a result of higher than average health care utilization and long-term relationships with the same provider.
- Transitioning to adult health care was important to participants, but most were not receiving counseling on this topic. Transition to higher education, the workforce, and general independence also appeared to be issues that were little addressed with participants. Although all participants have medical ID forms (504s) for their schools, very few were receiving transition counseling at the same time.

Themes explored with adults included issues impacting the health of adolescents, the strengths and weaknesses of New Hampshire's response in meeting perceived needs, strategies and approaches for engaging adolescents, and recommendations for improving the health and well-being of adolescents. High priority concerns included mental health issues, healthy sexual relations, nutrition and exercise, substance abuse, lack of quality health care services and providers with adolescent specialty, peer pressure, discrimination and economic disadvantage, safety and injury prevention, and family issues/dynamics.

These groups had different explanations for the root causes of problems and different recommendations for addressing needs. However, some commonly expressed viewpoints and recommendations were:

- Health care services, especially mental health services are inadequate.
- Health care providers need more training on adolescent health issues.
- There needs to be more focus on and funding for adolescent health issues.
- Increase access to medical services by addressing barriers such as location, hours, comprehensive services, insurance, and provider sensitivity.
- After school programming options for adolescents should be expanded.
- There should be a greater focus on interagency organization and coordination of adolescent health issues.
- Appropriate sources of information for adolescents and parents should be objective, unbiased, and from informed sources.
- There is a need for expanded cultural sensitivity to adolescents (e.g., racial, socio-economic, and sexual minority youths as well as adolescents in general).

Guiding Principles

The recommendations presented in this document were developed after careful analysis of available data about adolescents in New Hampshire and solicitation of input from parents, professionals and youth themselves. Priority needs of our adolescents were then considered in the context of national recommendations for ensuring adolescent health, such as Healthy People 2010, research on adolescents and their development, and commonly accepted theories about effective approaches to working with youth and their families.

The resulting framework of recommendations and objectives provides structure and focus to efforts toward improving adolescent health in New Hampshire. Common to all recommendations and objectives is a set of guiding principles reflecting a positive youth development philosophy that depends heavily on families and communities working together to support the well being of all youth.

1. ***Adolescence is a developmental period bridging childhood and adulthood.***

Adolescence is a biologically and socially defined stage that is a continuation of a life trajectory based on the events of childhood and providing a foundation for adult health and well-being. Adolescence is of particular importance because choices made and lifestyles established are critical to healthy adulthood (Ozer, McDonald, & Irwin, 2002). It is also a time of great physical and emotional change, resulting in increased vulnerability to risks, unique health concerns, and real and perceived barriers to accessing health care. This plan is designed to support the physical, cognitive, emotional, educational, and social development of adolescents, in order to prepare them for adulthood.

2. ***All youth are valuable and have the potential to make positive contributions to our society and become healthy adults.***

Diversity is valued and it is expected that this plan pertains to all youth. Adults must take the responsibility for working together and with adolescents to make sure that all youth receive the support and variety of experiences they need to develop their full potential.

3. **S*ocial conditions that limit adolescents' opportunities and resources make some youth particularly vulnerable.***

All youth face challenges during adolescence, but some youth are at additional risk. Youth with special physical, emotional, or cognitive needs may be more vulnerable. Economic inequality can have a negative impact on adolescents and family income is the strongest predictor of adolescent health (Call et. al., 2002; Ozer, McDonald, & Irwin, 2002). Providing environments where youth can develop to their full potential both increases the likelihood that they will become healthy adults while reducing the likelihood that they will live in poverty as adults. This plan presumes that efforts be made to provide services to the most vulnerable youth.

4. ***Involving youth as partners enriches our programs and policies and provides opportunities for adolescents to develop new skills and knowledge.***

Working together with adolescents offers multiple benefits. Adults gain a clearer understanding of adolescents' needs, desires, and perceptions. Adolescents develop leadership, critical thinking, and interpersonal skills. This plan is based on the belief that every effort should be made to involve youth as partners in a meaningful way.

5. ***Early intervention across the environments where adolescents function improves the likelihood of effectively supporting their health and well-being.***

Providing information and support before problems exist appears to be most effective in ensuring adolescent health. When families, school staff, and community members communicate similar expectations and provide similar guidance to developing youth, positive outcomes are more likely (Boganschneider, 1996). This plan carries with it the expectation that interventions be preventive whenever possible and that there is communication among all the contexts and multiple spheres of influence within which youth live and work.

6. Problem free is not fully prepared.

This key principle of positive youth development theory (Ferber, Pittman, & Marshall, 2002) compels those who work with and for youth to move beyond a risk-deficit approach. The fact that adolescents are not involved in health-compromising behaviors does not mean that they have the knowledge, skills, and support to make positive decisions that promote their health and well-being. This plan is designed to both reduce risk factors and build protective factors in youth.

7. ***Program and policy decisions should be made using research-based evidence.***

A vast amount of scientific information is available about adolescents and their development. To be most effective, programs and policies should use available information to make decisions that reflect state-of-the-art knowledge about adolescents and their families. This plan presumes that theory and research guide policy decisions and the development of programs and services for youth and their families.

Recommendations and Objectives

Recommendation 1: Build the capacity of youth to become healthy, productive adults.

Adolescents who learn to make meaningful contributions to others and to society, and who develop competence, confidence, character, and connection to others and their community, are prepared to become healthy adults (Pittman et al., 2001). To support healthy development, adolescents need challenging opportunities for learning, recreation, work, and civic engagement, in safe environments where positive adult role models are available to help them develop critical thinking, decision-making, relationship, and refusal skills. Youth also need accurate information, access to resources, assistance with life transitions, and opportunities to participate in identifying and addressing issues that affect their health and development.

Focal Areas and Objectives

1.1 Access to health resources

- Increase opportunities for youth to access accurate, comprehensive health information.
- Ensure that youth are aware of available and appropriate health-related resources.
- Work to reduce disparities in health status for our youth.

1.2 Youth partnership and leadership

- Provide leadership and decision-making opportunities for all youth.
- Create opportunities for youth-adult partnerships in activities that are meaningful to both.
- Ensure that youth are represented on policy-making groups or advisory councils of programs, agencies, or other institutions serving youth.

1.3 Reaching out to youth

- Develop programs to address explicitly transitions in adolescents' lives, especially for youth with special health care needs.
- Develop strategies to reach out to the most vulnerable youth.

Recommendation 2: Target initiatives to address the highest priority adolescent health issues.

The recommendations of this plan endeavor to improve adolescent health by influencing a wide range of health outcomes; adolescent health risks are greatly mitigated by supporting communities, helping families, encouraging collaborations, and building the capacity of youth. Although general improvements in adolescent health can be gained by these broadly targeted initiatives, data point toward several areas of adolescent health that are particular issues for New Hampshire youth. These areas deserve a more targeted approach.

Focal Areas and Objectives

2.1 Nutrition and physical activity

- Increase adolescents' awareness of good nutrition and physical fitness.
- Increase the availability of healthy food and beverages in schools.
- Increase the proportion of students who participate in regular physical activity both in and out of school.

2.2 Mental health and Alcohol, Drug, and Tobacco Use

- Increase access to mental health screening, referral, and treatment for youth.
- Increase access to substance abuse prevention, screening, and treatment.
- Decrease the proportion of youth who binge drink and reduce adolescent alcohol use overall.

2.3 Reproductive health

- Make accurate information on responsible sexual behavior, including the benefits of abstinence, more easily available to youth and their families.
- Provide confidential, youth-friendly reproductive health services.
- Encourage communication between adolescents and their parents about reproductive health issues.
- Encourage all providers who serve adolescents to screen sexually active females for chlamydia, regardless of symptoms.
- Encourage appropriate HIV risk assessment and reduction counseling in adolescent health encounters, with testing as indicated.

2.4 Injury prevention

- Develop policies and establish prevention activities that work to reduce motor vehicle crash injuries and deaths to adolescents.
- Continue to enforce existing laws regarding adolescent drivers, such as mandatory seat belt use and zero tolerance for alcohol use.
- Encourage the implementation of policies, procedures, and evaluation programs in health care settings to assess for and intervene with adolescents at risk for suicide.
- Engage the public and policy makers in the development and dissemination of a New Hampshire youth suicide prevention protocol.
- Support public awareness campaigns on adolescent dating violence.

Recommendation 3: Increase knowledge about adolescence and positive youth development through education and professional development programs for adults.

Many professionals may influence the lives of adolescents and impact their ability to make healthy decisions. Some professionals work directly with youth in our schools, courtrooms, hospitals, and community programs. Others influence policy decisions affecting the well-being

of adolescents and their families. To be most effective, professionals need accurate, state-of-the-art information, a comprehensive understanding of normative adolescent development, and an awareness of youth culture. Professionals who work closely with youth will benefit from training and education targeted toward their specific areas of responsibility.

Focal Areas and Objectives

3.1 Training needs

- Identify training needs across disciplines throughout the state and develop standardized training curricula for those providing services to youth.
- Increase the cultural competence and sensitivity of those providing services to youth.
- Ensure that health professionals are trained to appropriately screen and refer teen victims and perpetrators of dating violence for services.
- Provide opportunities for health professionals to increase their skill in screening for and managing suicide risk.

3.2 Systems of training

- Increase youth-related continuing education opportunities for professionals and paraprofessionals.
- Establish an advanced certificate program in adolescent development.

3.3 Training resources

- Develop a team of youth trained in providing workshops to interpret popular youth culture to professionals who serve youth so that professionals can understand a youth perspective and craft more effective messages for youth.
- Develop a community resource book for those working with and for youth.

Recommendation 4: Encourage collaborations among those working for and with youth.

An integrative approach that relies on partnerships among youth-focused programs, agencies, and services promises to be more effective than traditional single-issue models (Dryfoos, 1998). Cross-disciplinary efforts that offer wrap-around services are more likely to comprehensively support youth. To be most effective, collaborators need to have a shared perspective of how to achieve adolescent well-being and the assistance of key administrators in addressing barriers to the successful implementation of such efforts.

Focal Areas and Objectives

4.1 Facilitation of collaborations and partnerships

- Catalogue agencies, organizations, and programs serving youth, and identify their missions and goals.
- Create incentives to encourage interdisciplinary partnerships.

- Institute regular interdisciplinary conferences and workshops to encourage development of shared knowledge, language, and goals.

4.2 Collaboration approaches

- Include youth in decisions about service integration.
- Develop innovative approaches to improve coordination among youth-serving programs and agencies so that funding streams can be blended and administrative obstacles reduced.
- Co-locate services for youth and establish interdisciplinary teams to provide comprehensive and coordinated services for youth.

Recommendation 5: Improve the responsiveness and availability of health care services to youth.

Services to youth need to be provided in a manner that acknowledges the particular challenges of adolescence. Identified barriers in accessing care for adolescents include transportation, cost, inconvenient hours, concerns about confidentiality, need for parental consent to receive certain services, language and cultural barriers, and lack of providers with training in adolescent health (Brindis et al., 1999). Involving youth in improving services will benefit providers as well as youth themselves.

Focal Areas and Objectives

5.1 Health care system refinement

- Create mechanisms for youth involvement in developing health care systems that meet their needs.
- Work with health insurers to widen the concept of well-child visits through adolescence (up to 24).

5.2 Access to health care services

- Use education and outreach to inform youth about health care options and providers who specialize in serving adolescents.
- Improve access to comprehensive care including dental and mental health services.
- Work to identify causes of the low utilization rates of EPSDT for Medicaid eligible youth.

5.3 Quality assurance

- Increase training about adolescent health care for providers to ensure youth-friendly, culturally competent health services.
- Develop evaluation tools to assess the quality of health care services, including self-evaluation by practitioners as well as evaluation of health services by youth and parents.

Recommendation 6: Help families support the health and well-being of their adolescents.

Parents and other caregivers play a critical role in the healthy development of young people. Despite the influences of peers and institutions, parents remain the primary source of information, support, and nurturance for adolescents. The behaviors and attitudes modeled by parents also influence adolescents' choices in a multitude of ways. It is therefore vital that all parents have access to quality information, services, and supports-- the essential tools necessary for active, parental participation in adolescent health promotion. All parents need information about normative developmental processes, information about effective parenting, and the support of social institutions (Steinberg & Duncan, 2002).

Focal Areas and Objectives

6.1 Parenting resources

- Increase the availability of information on normative adolescent development.
- Increase parents' awareness of risk and protective factors for youth.
- Provide parenting resources for parents of adolescents.

6.2 Parenting issues

- Provide support to parents who experience problems, such as relationship, violence, substance abuse, and mental health issues to enable enhanced relationships with their adolescents.
- Provide opportunities for parents to improve their skills in seeking out quality health-related information and services.

Recommendation 7: Provide educational environments that prepare all youth for healthy adulthood.

Schools are among the most important environments for youth and are uniquely situated to help them develop the skills and competencies that foster healthy development. There are growing expectations for schools to meet multiple needs of youth and families. Other community resources should collaborate to better support schools and teachers. Education and preparation for adult responsibilities are keys to preparing youth for adult work and decreasing the risk of poverty in future generations. A rapidly changing economy and uncertain world conditions indicate the need for all youth to develop the skills that will enable them to seek out new knowledge on their own and adapt their skills to keep pace with these changes (Youniss & Ruth, 2002).

Focal Areas and Objectives

7.1 Environment and community connections

- Ensure that schools are safe places for all youth.
- Increase connections among schools, families, and communities.

7.2 Educational approaches

- Expand apprenticeships, job training, and other workforce development programs for both in and out-of-school youth.
- Increase the availability of skill-based health information for youth.
- Emphasize social as well as academic competence in the school setting.

7.3 Vulnerable Youth

- Identify strategies to help all youth complete high school.
- Support the work of schools in determining the needs of vulnerable youth and linking them to available community resources.
- Promulgate a common definition of vulnerable youth and increase awareness of evidence-based practices and community resources to address these youth.

Recommendation 8: Increase community support for adolescent health.

Communities can play an important role in adolescent well-being. They can provide assistance to adolescents and their families, and also offer opportunities for civic engagement of youth. Involvement in their communities, with caring adults, helps youth to develop values, increases their understanding of themselves and the world, reduces participation in health-compromising behaviors, enhances their critical thinking skills, and encourages the development of self esteem and positive social relationships (Call et al., 2002). Media are an important influence in both communities and the larger society and can play a significant role by providing accurate knowledge about adolescent health and portraying youth more positively.

Focal Areas and Objectives

8.1 Nurturing connections

- Increase opportunities for youth to develop connections with supportive adults.
- Increase meaningful opportunities for all youth to develop a sense of connection to their community through civic engagement and service learning.
- Increase opportunities for youth to interact with and form relationships with people from a wide variety of backgrounds.

8.2 Existing community programs

- Support effective after-school and out-of-school programs.
- Provide assistance to help community programs integrate positive youth development approaches and evaluation components.
- Provide assistance to community programs to ensure that they meet the needs of all youth.

8.3 Promote positive perceptions of youth

- Partner with media to encourage a balanced coverage of youth and accurate, health promotion information.
- Develop a community asset-mapping tool to identify and assess access to resources, such as the availability of healthy foods and safe spaces as well as the ratio of youth to adults.

Recommendation 9: Ensure the availability of reliable, useful, comprehensive data about adolescents in New Hampshire.

Policy makers, educators, program developers, community groups, healthcare providers, and others concerned about adolescent health need quality, comprehensive data to guide decisions, create effective programs, improve service provision, target resources, and accurately profile adolescent health across a variety of contexts. Positive images of youth can be enhanced by the use of data that focuses on youths' strengths. Including data highlighting the positive aspects of adolescents' lives such as achievements, assets, and abilities provides a more balanced perspective and is more likely to contribute to effective programs, policies, and services.

Focal Areas and Objectives

9.1 Data access and indicators

- Develop a set of critical adolescent health indicators that can be regularly tracked.
- Create data systems that have internal integrity and the ability to link with each other.
- Improve access to existing data regarding adolescents.

9.2 Data collection

- Collect information that allows for a full assessment of adolescent health and well-being, including both protective and risk factors.
- Improve data collection to allow for the lowest possible level of analysis.
- Explore the feasibility of cost effective data collection methodologies to assure the inclusion of racial and ethnic minorities, out of school youth, homeless youth, and youth ages 18-24.

Resources

The following websites are sources of primary research and reviews of best practice approaches to adolescent health, up-to-date data, state and national priorities and tools for program planning and development. As each site has not been screened for all electronically linked individuals or organizations, the appearance of an individual or organization on any of these websites is not intended as an endorsement. However, the parent organization of each website is nationally recognized as a reputable source of information.

National Resources

Konopka Institute for Best Practices in Adolescent Health
http://allaboutkids.umn.edu/cfahad/index_konopka.htm
The Konopka Institute is built on a foundation of research articulating demonstrated effectiveness in healthy youth development.

National Adolescent Health Information Center (NAHIC)
http://nahic.ucsf.edu
The overall goal of NAHIC is to improve the health of adolescents by serving as a national resource for adolescent health information and research and to assure the integration, synthesis, coordination and dissemination of adolescent health-related information.

Division of Adolescent and School Health, Centers for Disease Control and Prevention
http://www.cdc.gov/HealthyYouth/
The Division of Adolescent and School Health (DASH) seeks to prevent the most serious health risk behaviors among children, adolescents and young adults.

The Forum for Youth Investment
http://www.forumforyouthinvestment.org/
The Forum for Youth Investment (the Forum) is dedicated to increasing the quality and quantity of youth investment and youth involvement by promoting a "big picture" approach to planning, research, advocacy and policy development among the broad range of organizations that help constituents and communities invest in children, youth, and families.

Child Trends
http://www.childtrends.org/
Child Trends is a nonprofit, nonpartisan children's research organization that collects and analyzes data; conducts, synthesizes, and disseminates research; designs and evaluates programs; and develops and tests promising approaches to research. Among other resources, this website maintains a series of "What Works" tables based on extensive review of available research on youth development, ranging from adolescent mental health to education.

The Community Toolbox
http://ctb.ku.edu/
The Tool Box provides practical information to support work in promoting community health and development. Tools and skill-building exercises are included on a variety of topics including program planning, evaluation, and community organizing for health.

State Resources

UNH Center on Adolescence, University of New Hampshire
http://www.adolescence.unh.edu/

The UNH Center on Adolescence is a university/state collaboration supporting the health and well-being of New Hampshire youth. The site offers research-based information about positive youth development and best practices for helping youth thrive and make a successful transition to adulthood. Exemplary programs and professionals working to benefit adolescents in New Hampshire are regularly highlighted. Education and training opportunities to expand knowledge and understanding about adolescents, their experiences, and their families are also included.

Health Statistics and Data Management Section (HSDM), Division of Public Health Services, NH DHHS
http://www.dhhs.nh.gov/DHHS/HSDM

The HSDM collects, stores, analyzes and disseminates NH health-related data, including birth, death, hospital, cancer and behavioral risk factor surveillance information. As steward of the data, the HSDM is responsible for ensuring the data is used appropriately and that the confidentiality and privacy of individuals are protected and maintained without exception. The HSDM performs custom analysis of data for DHHS and community customers and produces annual reports.

Injury Prevention Center at Dartmouth
http://www.dartmouth.edu/~ipc/index.html

The Injury Prevention Center, located at *Dartmouth Medical School,* works to reduce the incidence of injury, death and disability through educating professionals and the general public about the causes and consequences of injuries; implementing and evaluating prevention and intervention strategies in joint efforts with health care providers, state agencies, and other NH organizations; and its resource center, which offers technical assistance and a variety of educational and other materials relating to injuries.

National Alliance for the Mentally Ill, New Hampshire (NAMI NH)
http://www.naminh.org/

NAMI NH is a statewide grassroots network providing information, education, and support to families and consumers of mental health services. NAMI NH serves adults with mental illness and children with severe emotional disturbance and their families. Its mission is the eradication of mental illness and the improvement in the quality of life for persons affected by mental illness.

New Futures
http://www.new-futures.org/

New Futures is a non-profit organization that fosters, promotes, and supports effective strategies to reduce alcohol, tobacco, and other drug (ATOD) problems. New Futures focuses on two goals: reducing underage alcohol problems; and, increasing access to treatment through leadership and policy development, information dissemination, and program innovation. The site provides reports on prevention and treatment, as well as links to recent publications on ATOD and local legislative updates.

NH Health Data Inventory

http://www.ecnh.unh.edu

This website is a product of the Empowering Communities project; it has been created to provide an inventory of existing health data to New Hampshire communities. The purpose of this inventory is to connect community residents to health data sources and to the stewards of these data sources.

NH Teen Institute

http://www.nhteeninstitute.org

Since 1983, the NH Teen Institute has offered wellness-focused prevention programs that train and motivate teens to make a positive difference in their schools and communities. This series of affirming, informative, and experiential programs helps teens build strength of character, camaraderie, a broad network of support and lives that are dependency free. Building youth leadership is our key strategy in preventing adolescent alcohol, tobacco and other drug use and abuse. Our unique training format empowers teens to create healthy lifestyles and positive environments for themselves and others.

Partnership for a Drug Free NH

http://www.dhhs.nh.gov/DHHS/ATODPREVENTION

The Partnership for a Drug Free New Hampshire, part of the DPHS, Alcohol, Tobacco & Other Drug Prevention Section, develops and distributes anti-drug messages that target youth and parents. Materials available to the public include: Pamphlets on drugs of use and abuse; NH developed posters for youth; and, “Growing Up Drug Free -- A Parent's Guide To Prevention".

PlusTime NH

http://www.plustime.org

PlusTime NH helps create and sustain high quality programs for school-age youth during non-school hours. By providing direct support, training, information and funding assistance, PlusTime NH is able to help communities throughout NH identify the needs of youth and mobilize local resources to develop and sustain appropriate out-of-school time programs.

Reach Out NH

http://www.reachoutnh.com

Reach Out NH was created to encourage teens from every possible background (e.g., religious, cultural, financial, national) to learn about what is and is not healthy and safe within relationships. The website lists resources and includes media clips about relationship violence.

Appendix A: Technical Notes

Interpreting Data

Data in this report are presented in a variety of ways. Simple counts, percentages (such as the YRBS data) and rates (such as STD data) are all included in this report. The reader is encouraged to pay close attention to figure and table titles, and legends, as a variety of statistics may be used within a single section. The formula used to calculate confidence intervals is described below.

In this report, comparisons are presented to nationwide statistics. Where possible, the US white rate is presented. The US white rate is a useful comparison to New Hampshire rates since New Hampshire is much more predominately white than the US.

Data Collection and Data Sources

Numerous data sources were investigated to provide this assessment of the health of New Hampshire's adolescents. Those data used in this document are an abbreviated compilation of these sources.

It is important to note limitations in certain data used to prepare this document. The Teen Assessment Project (TAP) survey does not provide data representative of all New Hampshire youth. Information from this source represents only those youth who participated in the survey and should be interpreted with caution. Similarly, 2001 YRBS data is not representative of all New Hampshire high school students, due to sample size. NH YRBS data for 2003, however, **is** representative of all New Hampshire high school students and may be compared both to national data and previous NH YRBS years that were also representative (1993 & 1995). New Hampshire data are also limited in a number of areas not easily tracked through surveys, such as environmental health concerns, the quality of mental and physical health care services, and other critical variables. Further, few data are available to assess the health status of certain specialized groups, such as racial and ethnic minorities, homeless youth, high school dropouts, and older adolescents. National research tells us that these groups are more likely to be in need of services and intervention. We also know relatively little about the status of protective factors present in adolescents' lives. Understanding protective as well as risk factors will allow for more thorough assessment of needs and the development of more successful interventions.

Finally, a goal of the National Initiative to Improve Adolescent Health by the year 2010 (NIIAH) is to assess the 21 Critical Health Objectives that represent the most serious health issues among young people. Unfortunately, data availability limits New Hampshire's capacity to analyze many variables included in these recommendations, thereby limiting our ability to compare New Hampshire data to national standards.

While New Hampshire is challenged by these limitations, and goals will need to be set to address them, the data presented in this report will help prioritize statewide efforts and provide essential information for parents, youth and professionals.

Most Commonly Cited Data Sources in this Plan:

1990 & 2000 U.S. Censuses
2001 & 2003 N.H. Youth Risk Behavior Survey (YRBS)
Teen Assessment Project (TAP) 2000-2001 Multi-year Report
2000 & 2002 N.H. Behavioral Risk Factor Surveillance System (BRFSS)
2001 N.H. School Nutrition Environment Survey
2001 N.H. Youth Tobacco Survey
2001 N.H. Insurance Family Survey

Frequently Asked Questions

1. What does the range of 95% confidence interval mean?

A 95% confidence interval is reported around certain New Hampshire statistics in this report. While birth data is nearly complete, and therefore not subject to sampling error (like, for example, data from the BRFSS), it may be affected by misrecording of information during the data collection and entry process. Additionally, when comparing rates over time or between groups it is also necessary to consider the effect of random variation on the data. The effect of these issues will tend to be more pronounced with fewer records. Because of these issues, the National Center for Health Statistics recommends a set of procedures that estimate the variability of rates and percentages based on the number of events under consideration. Where applicable, these methods have been applied (see Confidence Interval Calculation later in this Appendix). The 95% confidence interval is the range of values that you could expect to occur under similar circumstances 95% of the time (National Center for Health Statistics, 2002).

2. How do I know if differences are "statistically significant"?

The 95% confidence interval represents the range of possible values that might occur, with 95% certainty, under similar circumstances. When comparing two groups on the same health topic (for example, comparing pregnancy rates in different ages of women) the 95% confidence interval for these two groups should be compared. If the range of values in the 95% confidence intervals do not overlap between the two groups, the difference between the groups is "statistically significant". If the confidence intervals overlap (i.e. if the confidence intervals share any of the same values), no statistically significant difference exists between the two groups. It is possible, however, that a difference exists but was not detected because there were too few events in one or more of the rates being compared. If very few events were included in the group being considered, the 95% confidence interval will be very wide, making it more likely to overlap with other confidence intervals. It is possible that by broadening the number of years considered – and thus increasing the number of events in the statistic – a more precise statistic might detect differences between groups.

3. It is now 2004, why doesn't the report include more recent data?

While most data are collected on a reasonably timely basis, some data (especially data collected by other states) are not available for a considerable period of time. There are also occasional

delays in data release because of problems with data quality, acquisition, or management encountered after the data has been submitted.

4. Why are some statistics reported as two-year averages?

It is possible to increase the statistical power for less frequent events by combining data for more than one year. This also makes the statistics more stable.

5. You define adolescents as persons 10 to 24 years of age within this report. Why are the statistics in the text, tables, and figures sometimes inconsistent with this definition?

The various data used to inform this publication were collected and/or reported in ways that were sometimes inconsistent with the definition of adolescents used here, as the defined population of certain data collection efforts may include age groups other than adolescents. For example, there are no adolescents under age 17 in prison in New Hampshire. Whenever appropriate data are available, the 10 to 24 year age group is used.

6. Where can I find more information about how to interpret the data in this report?

Please feel free to contact the Maternal and Child Health Section with any questions you may have:

Shari Campbell, Program Assistant
NH Department of Health and Human Services
Maternal and Child Health Section
29 Hazen Drive
Concord, NH 03301-6504
Telephone: 603-271-4517 or 1-800-852-3345, ext. 4517
TDD Access 1-800-735-2964
Or via email at dlcampbell@dhhs.state.nh.us

An electronic version of this report is available on the MCH & the UNH Center on Adolescence websites: http://www.dhhs.nh.gov/DHHS/MCH/LIBRARY/default.htm and http://www.adolescence.unh.edu

Confidence Interval Calculations [2]

To allow comparison of statistics, confidence intervals were calculated at the 95% level. Where possible these are presented on charts and graphs in this report. The methods used were based on those used by the National Center for Health Statistics at the Centers for Disease Control and Prevention (CDC) in their reports on death (refer to NCHS reports on deaths for further explanation).

Confidence intervals for **age specific rates** are calculated in the following way. When the number of events the rate is based on is 100 or greater than the following formula is used:
Lower 95% limit = $R - (1.96 * R / \sqrt{D})$

[2] Bureau of Health Statistics and Data Management, NH DHHS

Upper 95% limit = $R + (1.96 * R / \sqrt{D})$
where

R = the rate

D = the number of deaths or hospitalizations in the rate

When the number of events is less than 100, the Poisson distribution is used to estimate the confidence interval:
Lower 95% limit = R * L

Upper 95% limit = R * U

where

R = the birth rate

L and U = values in a table derived from the Poisson distribution for the 95% level.

The confidence interval calculation for **age-adjusted rates** is the same for rates based on fewer than 100 events. When based on more than 100 events a different procedure is used that is more complex.

Lower 95% limit = $R'' - (1.96*S(R''))$
Upper 95% limit = $R'' + (1.96*S(R''))$
where

R'' = standardized rate per 100,000

$$S(R'') = \sqrt{\left(\sum \left(w_i^2 R_i^2 \left(\frac{1}{D_i}\right)\right)\right)}$$

w_i = i^{th} age specific population proportion in the standard population such that $\sum(w_i) = 1.0$

R_i = age-specific rate (per 100,000) for the i^{th} age group.

D_i = total number of events for the i^{th} age group upon which age-specific rate is based.

Wealth Cluster Methodology

In creating the New Hampshire wealth clusters for this analysis, the process was similar, but not identical, to that used in creating economic clusters for the Children's Alliance of New Hampshire's Kids Count 2000 databook (2000).

New Hampshire towns and cities were separated into five economically similar groups, each containing about 20% of the state's population. Economic conditions were drawn from four personal income measures in the 2000 Census (US Census Bureau, 2000):

1. Median Family Income, 1999
2. Per Capita Income, 1999
3. % of 17 Year Olds Below Poverty Level
4. % of Persons Below 185% of Poverty Level

These census measures and the 2000 population were obtained for each municipality. The mean and standard deviation of each measure were calculated over the 233 municipalities. Small, unincorporated places and locations were not included; the 233 municipalities accounted for 1,235,513 (99.9%) of the state's population in the year 2000.

The value for each municipality on each measure was then converted to standard deviation units above or below the mean. For direct income measures, positive standard deviations indicate higher incomes. For poverty percentages, negative standard deviations indicate higher incomes; therefore, each standard value was multiplied by -1.0 so that positive numbers would indicate better community economics.

Standardized deviation measures were then cut so that no number above +2.5762 or below -2.5762 was allowed. Measures above or below these limits were set at these maximum and minimum figures, to ensure that outlier status in one measure did not skew the other three measures for a municipality. The four adjusted measurements for each municipality were then added to ensure a relatively equal weighting for each of the four measures. The highest score was 8.07; the lowest score was -7.94.

The municipalities were then sorted in order from high to low score. Beginning with the highest scoring municipalities, a grouping was formed that included an aggregate population close to 247,157 (20% of the state's total population) – that grouping constituted the wealthiest cluster, labeled "Cluster #1". This process was repeated so that each municipality was included in one of five "wealth clusters". See Table 12.

Table 13: Wealth Cluster Characteristics, NH Municipalities, 2000

Cluster	Count of Municipalities	Population in Cluster
1: Wealthiest	40	246,588
2: Second wealthiest	50	247,644
3: Middle	46	244,432
4: Second Poorest	49	247,136
5: Poorest	48	249,713

Appendix B:

21 Critical Health Objectives for Adolescents & Young Adults

National Initiative to Improve Adolescent Health[3]

The 21 Critical Health Objectives represent the most serious health and safety issues facing adolescents and young adults (aged 10 to 24 years): mortality, unintentional injury, violence, Alcohol, Drug, and Tobacco Use and mental health, reproductive health, and the prevention of chronic diseases during adulthood.

Obj. #	Objective	Baseline (Year)	2010 Target
16-03 (a,b,c)	Reduce deaths of adolescents and young adults. 10- to 14-years-olds 15- to 19-year-olds 20- to 24-year-olds	 21.5 per 100,000 (1998) 69.5 per 100,000 (1998) 92.7 per 100,000 (1998)	 16.8 per 100,000 39.8 per 100,000 49.0 per 100,000
Unintentional Injury			
15-15 (a)	Reduce deaths caused by motor vehicle crashes. 15- to 24-years-olds	25.6 per 100,000 (1999)	[1]
26-01 (a)	Reduce deaths and injuries caused by alcohol and drug-related motor vehicle crashes. 15- to 24-year-olds	13.5 per 100,000 (1998)	[1]
15-19	Increase use of safety belts 9th-12th grade students.	84% (1999)	92%
26-06	Reduce the proportion of adolescents who report that they rode, during the previous 30 days, with a driver who had been drinking alcohol, 9th-12th grade students.	33% (1999)	30%
Violence			
18-01	Reduce the suicide rate. 10- to 14-year-olds 15- to 19-year-olds	 1.2 per 100,000 (1999) 8.0 per 100,000 (1999)	 [1] [1]
18-02	Reduce the rate of suicide attempts by adolescents that required medical attention. 9th-12th grade students.	2.6% (1999)	1.0%
15-32	Reduce homicides. 10- to 14-year-olds 15- to 19-year-olds	 1.2 per 100,000 (1999) 10.4 per 100,000 (1999)	 [1] [1]
15-38	Reduce physical fighting among adolescents. 9th-12th grade students.	36% (1999)	32%
15-39	Reduce weapon carrying by adolescents on school property. 9th-12th grade students.	6.9% (1999)	4.9%

[3] The NIIAH is facilitated by the Division of Adolescent and School Health, Centers for Disease Control and Prevention, and the Maternal and Child Health Bureau, Health Resources and Services Administration.

Obj. #	Objective	Baseline (Year)	2010 Target
Alcohol, Drug, and Tobacco Use and Mental Health			
26-11 (d)	Reduce the proportion of persons engaging in binge drinking of alcoholic beverages. 12- to 17-years-olds	7.7% (1998)	2.0%
26-10 (b)	Reduce past-month use of illicit substances (marijuana). 12- to 17-years-olds	8.3% (1998)	0.7%
06-02	Reduce the proportion of children and adolescents with disabilities who are reported to be sad, unhappy, or depressed. 4- to 17-year-olds	[2]	[2]
18-07	(Developmental) Increase the proportion of children with mental health problems who receive treatment.	[3]	[3]
Reproductive Health			
09-97	Reduce pregnancies among adolescent females. 15- to 17-years-olds	68 per 1,000 (1996)	43 per 1,000
13-05	(Developmental) Reduce the number of new HIV diagnoses among adolescents and adults. 13- to 24-years-olds	16,479 (1998) [4]	[3]
25-01 (a,b,c)	Reduce the proportion of adolescents and young adults with *Chlamydia trachomatis* infections. 15-to 24-year-olds Females attending family planning clinics Females attending sexually transmitted disease clinics Males attending sexually transmitted disease clinics	 5.0% (1997) 12.2% (1997) 15.7% (1997)	 3.0% 3.0% 3.0%
25-11	Increase the proportion of adolescents who abstain from sexual intercourse or use condoms if currently sexually active. 9th-12th grade students.	85% (1999)	95%
Chronic Diseases			
27-02 (a)	Reduce tobacco use by adolescents. 9th-12th grade students	40% (1999)	21%
19-03 (b)	Reduce the proportion of children and adolescents who are overweight or obese. 12- to 19-year-olds	11% (1988-94)	5%
22-07	Increase the proportion of adolescents who engage in vigorous physical activity that promotes cardiorespiratory fitness three or more days per week for 20 or more minutes per occasion. 9th-12th grade students.	65% (1999)	85%

Note: Critical health outcomes are underlined, and behaviors that substantially contribute to important health outcomes are in normal font.

[1] 2010 target not provided for adolescent/young adult age group.
[2] Baseline and target inclusive of age groups outside of adolescent/young adult age parameters.
[3} Developmental objective – baseline and 2010 target to be provided by 2004.
[4] Proposed baseline is shown but has not yet been approved by the Healthy People 2010 Steering Committee.

Source: U.S. Department of Health and Human Services. *Healthy People 2010*. With Understanding and Improving Health and Objectives for Improving Health. 2 Vols. Washington, DC: U.S. Government Printing Office, November 2000. This information can also be accessed at http://wonder.cdc.gov/data2010/.

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Appendix C:

Risk and Protective Factors in the Lives of Youth

(Blum & Rinehart, 1997; Channing Bete, 2004)

Domain	Risk Factors	Protective Factors
Individual	Biological vulnerability Intellectual impairment Early/late onset of puberty Aggressive temperament Impulsivity Low Harm Avoidance ADHD Aggressive Behavior Sensation Seeking Early initiation of risky behavior Rebelliousness	Spirituality/religiosity Social skills High intelligence Late maturation Higher self-image Higher self-efficacy Perceived importance of parents
Family	Low parental education Family mental illness Maternal stress Poverty Access to weapons Family history of risky behaviors Authoritarian parenting style Exposure to family violence	Connectedness Parental presence Parental Values -toward school -toward risk behavior Two parents Family cohesion Authoritative parenting style
School	Academic failure or retention Absenteeism Suspension	Connectedness to school Successful academic performance Consistency of schools attended
Peers	Prejudice from peers Social isolation Participation in deviant culture	Being treated fairly by peers Having low-risk friends Peers with pro-social norms
Social Environment	Arrests by age, type Poverty Single parent/female head High mobility rates Exposure to media violence Access to tobacco, alcohol, drugs, or firearms Poor living conditions	Educational attainment by age School enrollment for 16-19 High health care utilization Employment rates of adults Access to role models Pro-social media

Appendix D: The Search Institute: Developmental Assets

Search Institute — Practical research benefiting children and youth

40 Developmental Assets™

Search Institute™ has identified the following building blocks of healthy development that help young people grow up healthy, caring, and responsible.

HEALTHY COMMUNITIES HEALTHY YOUTH®

	Category	Asset Name and Definition
External Assets	Support	1. **Family Support**-Family life provides high levels of love and support. 2. **Positive Family Communication**-Young person and her or his parent(s) communicate positively, and young person is willing to seek advice and counsel from parents. 3. **Other Adult Relationships**-Young person receives support from three or more nonparent adults. 4. **Caring Neighborhood**-Young person experiences caring neighbors. 5. **Caring School Climate**-School provides a caring, encouraging environment. 6. **Parent Involvement in Schooling**-Parent(s) are actively involved in helping young person succeed in school.
	Empowerment	7. **Community Values Youth**-Young person perceives that adults in the community value youth. 8. **Youth as Resources**-Young people are given useful roles in the community. 9. **Service to Others**-Young person serves in the community one hour or more per week. 10. **Safety**-Young person feels safe at home, school, and in the neighborhood.
	Boundaries & Expectations	11. **Family Boundaries**-Family has clear rules and consequences and monitors the young person's whereabouts. 12. **School Boundaries**-School provides clear rules and consequences. 13. **Neighborhood Boundaries**-Neighbors take responsibility for monitoring young people's behavior. 14. **Adult Role Models**-Parent(s) and other adults model positive, responsible behavior. 15. **Positive Peer Influence**-Young person's best friends model responsible behavior. 16. **High Expectations**-Both parent(s) and teachers encourage the young person to do well.
	Constructive Use of Time	17. **Creative Activities**-Young person spends three or more hours per week in lessons or practice in music, theater, or other arts. 18. **Youth Programs**-Young person spends three or more hours per week in sports, clubs, or organizations at school and/or in the community. 19. **Religious Community**-Young person spends one or more hours per week in activities in a religious institution. 20. **Time at Home**-Young person is out with friends "with nothing special to do" two or fewer nights per week.
Internal Assets	Commitment to Learning	21. **Achievement Motivation**-Young person is motivated to do well in school. 22. **School Engagement**-Young person is actively engaged in learning. 23. **Homework**-Young person reports doing at least one hour of homework every school day. 24. **Bonding to School**-Young person cares about her or his school. 25. **Reading for Pleasure**-Young person reads for pleasure three or more hours per week.
	Positive Values	26. **Caring**-Young person places high value on helping other people. 27. **Equality and Social Justice**-Young person places high value on promoting equality and reducing hunger and poverty. 28. **Integrity**-Young person acts on convictions and stands up for her or his beliefs. 29. **Honesty**-Young person "tells the truth even when it is not easy." 30. **Responsibility**-Young person accepts and takes personal responsibility. 31. **Restraint**-Young person believes it is important not to be sexually active or to use alcohol or other drugs.
	Social Competencies	32. **Planning and Decision Making**-Young person knows how to plan ahead and make choices. 33. **Interpersonal Competence**-Young person has empathy, sensitivity, and friendship skills. 34. **Cultural Competence**-Young person has knowledge of and comfort with people of different cultural/racial/ethnic backgrounds. 35. **Resistance Skills**-Young person can resist negative peer pressure and dangerous situations. 36. **Peaceful Conflict Resolution**-Young person seeks to resolve conflict nonviolently.
	Positive Identity	37. **Personal Power**-Young person feels he or she has control over "things that happen to me." 38. **Self-Esteem**-Young person reports having a high self-esteem. 39. **Sense of Purpose**-Young person reports that "my life has a purpose." 40. **Positive View of Personal Future**-Young person is optimistic about her or his personal future.

Appendix E: Reference List

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